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ARMY CONCEPT TEAM IN VIETNAM
APO 143, San Francisco, California

ACTIV-GM

② 15 April 1963

AD No. 343706
FILE COPY

⑥ Mechanized Rifle Troop (M113)

④ (U)

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⑦ MONTHLY TEST REPORT, NUMBER 2,

1-31 March 1963

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**ARMY CONCEPT TEAM IN VIETNAM
APO 143, U. S. Forces**

ACTIV-GM

15 April 1963

SUBJECT: Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)
(1-31 March 1963) (U)

TO: See Annex G

1. (C) General.

a. Purpose of the test.

To provide data for operational evaluation of a mechanized rifle troop equipped with M113 armored personnel carriers (APC's)- to include organization for combat, tactics and techniques of employment, logistical support requirements, and vehicle performance in counter-insurgency operations in the Republic of Vietnam (RVN).

b. Test concept.

(1) Units and vehicles utilized in this test are organic to the mechanized rifle troops of ARVN (Army of the Republic of Vietnam) armored cavalry squadrons. Command and control is Vietnamese.

(2) Mechanized rifle troops are observed as they engage in training, maintenance, and combat operations in the four Corps tactical areas of the RVN. Data required to respond to the test objectives are collected and evaluated. MAC advisors and Vietnamese personnel assist in the collection of data.

(3) Efforts are made through US advisors to encourage the Vietnamese to seek sound tactics and techniques of employment in all phases of operations.

(4) Operations were conducted in the following general areas:

1st Armored Cavalry Squadron	III Corps Area
2nd Armored Cavalry Squadron	IV Corps Area
3rd Armored Cavalry Squadron	II Corps Area
4th Armored Cavalry Squadron	I Corps Area

c. Test progress.

The test is considered to be 60% complete.

2. (C) Description of the test unit.

a. Test units involved in this evaluation are mechanized rifle troops equipped with fifteen M113 armored personnel carriers and organized as shown in Monthly Test Report Number 1. These units are basically

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SUBJECT: Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)
(1-31 March 1963) (U)

infantry rifle companies trained to conduct both mounted and dismounted operations.

2. There are eight mechanized rifle troops in the ARVN. Two are assigned to each of the four cavalry squadrons. Some stations are indicated below:

(1) 1st Squadron	PO VAP (DAI M)
(2) 2nd Squadron	MY THO
(3) 3rd Squadron	THIE KU
(4) 4th Squadron	THIE TRI

3. (U) Factors limiting the test effort.

a. Test units and equipment belong to COMUSMACV and are completely under the command and control of the COMUSMACV commanders. Requests for the collection of particular data and recommendations on new or revised tactics and techniques are made through US advisors. Firm scheduling, predictable completion dates, and complete coverage of all test objectives are, consequently, difficult to attain.

b. Testing is conducted primarily in actual combat. Even in training exercises, the probability of encountering live enemy is about .50. This circumstance precludes the establishment of the controls over test activities that are normally maintained in COMUSMACV troop tests. All test activities must of necessity be subordinate to tactical operations.

c. A decrease in the number of enemy contacts is a possible indicator that insurgents are avoiding M113 troops. During the period, eight mechanized rifle troops accounted for only 18 enemy casualties. By contrast, on one operation in September 1962, one troop accounted for 100. In only one operation during March did the insurgents stand and fight, and then only until they were able to withdraw under cover of darkness. (See Annex F).

4. (C) Significant events affecting the test.

a. Observations during March tend to confirm initial impressions that the M113 is an effective fighting vehicle in delta areas and wooded plateaus but is not usable as a fighting vehicle in jungle terrain.

b. Two troops that were in a training status at the end of the last reporting period (see para 4a, Monthly Test Report Number 1) have completed training. All M113 troops were operational as of 15 March 1963.

c. Detonation of a mine under one M113 APC caused rupture of the fuel tanks resulting in a fire that destroyed the vehicle. Another was penetrated by friendly .50-caliber machine gun fire (See Annex E).

d. AP TAN THOI Operation. (See Annex F)

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SUBJECT: Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)
(1-31 March 1963) (U)

5. (C) Content and format of report.

a. Content: This report covers the period 1-31 March 1963. Monthly reports are intended to indicate progress of the test and to provide a vehicle for the systematic collection of additional data for incorporation in the final report.

b. Format: Annexes A through E cover the five test objectives. Annex F is a report of the AP TAN THOI Operation. Distribution of the report is shown at Annex G.

6. (C) References.

a. DA letter, AGAM-P(M) 381 (31 Oct 62) DCSOPS, subject: "Army Troop Test Program in Vietnam (U)," 6 November 1962, as amended.

b. ACTIV letter (to CGUSARCDG), subject: "Plan of Test, Mechanized Rifle Troop (M113)," 28 November 1962.

c. ACTIV letter (to CINCPAC through COMUSMACV), subject: "Summary of Test Plan for Mechanized Rifle Troop (M113) (U)," 3 December 1962.

d. CINCPAC message, DTG 220216Z January 1963, subject: "Proposal for U. S. Army Tests in Vietnam."

7 Inclosures

1. (TAB A) ANNEX A -- Objective 1 (Organization)
2. (TAB B) ANNEX B -- Objective 2 (Tactics and Techniques)
3. (TAB C) ANNEX C -- Objective 3 (Logistical support requirements)
4. (TAB D) ANNEX D -- Objective 4 (Effects of heat on personnel)
5. (TAB E) ANNEX E -- Objective 5 (Vehicle performance)
6. (TAB F) ANNEX F -- AP TAN THOI Operation
7. (TAB G) ANNEX G -- Distribution of report

E. L. Rowley
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Major General, USA
Chief

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ACTIV-GP

Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX A -- Objective 1 (Organization)

1. (C) Objective.

To determine the optimum organization for combat of the mechanized rifle troop at the platoon and troop level, to include cross-reinforcement with elements of the reconnaissance troop equipped with the M114 command and reconnaissance vehicle.

2. (C) Discussion.

a. Present organization of the test unit is shown in Monthly Test Report Number 1, 15 March 1963.

b. Observations continue to indicate that the number of vehicles in the platoon and troop can be properly controlled by the commander.

c. Instances of troops dismounting from M113 APC's to fight (or operate) on foot increased during the period. On the AP TAN THOI Operation 4th Mechanized Rifle Troop dismounted, moved approximately three kilometers, and occupied a blocking position for 14 hours. On a search-and-clear operation in II Corps area, 5th Mechanized Rifle Troop, 3rd Armored Cavalry Squadron, dismounted six times in three days for a total of approximately five hours of dismounted action. In I Corps area, mechanized rifle troops operated dismounted approximately 90% of the time, primarily because the terrain is unsuitable for mounted operations. When dismounted a full rifle squad can be utilized, thus the need for 11 transported troopers per vehicle (the driver and gunner makes the total complement 13) tends to be substantiated. This will be examined further during the next period.

d. A need for aerial observation for mechanized units is indicated. The 5th Troop of the 3rd Squadron, on a reconnaissance type operation covered approximately four kilometers in three hours on 26 March over wooded, hilly terrain. The following day, operating over the same type terrain but aided by an O-1 aircraft it moved approximately ten kilometers in 90 minutes. Aerial observation could also be used in the delta area to reconnoiter routes and assist mechanized units in avoiding canals and other obstacles not shown on maps.

e. The 57-mm recoilless rifle was not used in any operation observed or reported. The necessity of maintaining this weapon in the organization will be further observed during the next period.

f. Terrain conditions in III and IV Corps areas restrict movement of wheeled vehicles. Supplies, mechanics, attached engineers (always needed in these areas), and any other needed support elements must therefore rely on organic M113 APC's for transport. Normal practice is to use the support platoon vehicles; this results in overcrowding. In one case (4th Troop, 2nd Squadron on 13 March), crew-served weapons, covered by men and equipment in overcrowded vehicles, could not be obtained quickly for action. Overcrowded conditions will be further investigated. At least two possible solutions appear feasible. (1) Authorization for additional M113's, and (2) reduction in numbers of supporting weapons, i.e., elimination of the 57-mm recoilless rifle squad and possibly one of three 81-mm mortar squads to make two M113's from the support platoon available as logistical carriers.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX A -- Objective 1 (continued)

as logistical carriers.

g. Firm, dry ground for emplacement of mortars in parts of III Corps area and most of IV Corps area is difficult, if not impossible, to find. Carrier-mounted mortars would improve employment of this weapon in these areas.

h. Personnel authorized in TOE for the unit mess are not always used for that purpose. In units without unit messes, men spend much of their time procuring or cooking food. In such units every carrier becomes a "kitchen truck". Overcrowding noted above is thus compounded, and most personnel must ride on top of the carriers. In units which operate unit messes, all personnel ride inside the vehicles.

3. (C) Findings.

a. Aerial observation facilitates operations of mechanized units in the RVN.

b. Carrier-mounted mortars are needed.

c. ARVN units which operate unit messes achieve more efficient use of vehicular space.

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Monthly Test Report Number 1000 - 1st Troop (P113)

ANNEX V -- Objective 2 (Tactics and Techniques)

1. (C) Objective.

To determine the most effective tactics and techniques of employment in the following type situations: insurgent operations under terrain and climate conditions peculiar to the MIA.

- a. Blocking and destruction operations.
- b. Security.
- c. Reconnaissance.
- d. Amphibious operations (swamps, rivers, inundated areas).
- e. Extended operations with aerial resupply.
- f. Combined operations with armored Cavalry Reconnaissance Troop (P114).
- g. Combined operations with Army helicopters.

2. (C) Discussion.

- a. Blocking and destruction.

(1) AAVN and other units expertly planned and executed. Although there were no observed instances of enemy being killed by AAVN activities, this appears to be as a result of the enemy being laid there as they were present rather than from inadequate intelligence on the part of AAVN. It is noted on at least three occasions that no effort was made to conceal blocking positions, and that they therefore could be easily identified and infiltrated by insurgents.

(2) One destruction operation was observed (see Tab F).

- b. Security.

The 4th Troop, 1st Cavalry Division, is currently securing 32 kilometers of highway in Long Binh District. This unit has been in place until about 1 May 1963. Although the mission does not exploit the full potential of the M113 (M-8 armored cars are also in use in this area adequately), the operation demonstrates the versatility of the M113 in blocking. The unit is also a blocking force, has a mission of patrolling and reconnoitering the area five miles west of the highway (for the entire length of the 32 kilometers secured), and is acting as a force reserve with two platoons on continual alert status prepared to move south into the Comm. area.

- c. Reconnaissance.

(1) A pure reconnaissance mission assigned to 5th Troop, 3rd Squadron on 10 March, was to reconnoiter a route of approximately 60 miles over partially wooded plateau and mountainous areas. Two enemy pressure-type mines were detonated by AAVN trucks. There was no other enemy contact. The unit accomplished its mission in three days.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX B -- Objective 2 (continued)

(2) All operations observed during March were basically reconnaissance type missions although some tasks assigned were designated "search-and-clear" or "seek-and-destroy". Tactics and techniques are basically those of US armored Cavalry reconnaissance troops and platoons. The M113 is well suited for this type operation because it provides the most dependable means of vehicular mobility over the varied types of terrain encountered in the RVN.

d. Amphibious operations.

On 28 February 1963, the 4th Troop, 2nd Squadron participated in an amphibious operation. The troop, less three vehicles, loaded at MY THO into LVM's (Landing Vehicles, Mechanized, with capacity for 12 M113's) within 38 minutes. Vehicles were not lashed to the decks. LVM and other craft used in the amphibious operation moved down the Mekong River out to sea, and then to the objective area approximately 67 miles from MY THO. Vehicles and men were on board the boats for 16 hours. Vehicles debarked from the LVM 500 meters from shore. Infantry units were not able to get to shore in 8-man infantry assault boats (naval) because of waves, approximately two feet high. The M113's reached shore without difficulty in about eight minutes. There was considerable undergrowth along the shore and a muddy bank, two feet high, with a 45 percent grade. The first vehicle got ashore without much difficulty; however, the area became a quagmire and succeeding vehicles had increasing difficulty. It took 1 1/2 hours for all vehicles to get ashore. From the shore, the unit moved inland on a search-and-clear mission across rice paddies and inundated areas. One insurgent patrol was encountered and two enemy were reported killed.

e. Extended operations with aerial re-supply.

None conducted.

f. Combined operations with the armored cavalry reconnaissance troop (M114)

None conducted.

g. Combined operations with armed helicopters.

None conducted.

h. Avoiding mines and other enemy defenses.

Indications are that Viet Cong use of vehicular mines is increasing. Enemy mines were observed on three occasions; however, only one of these mines was detonated by an M113. In all three instances the mines were on routes and trails previously used by mechanized rifle troops, although in each instance there were sufficient alternate routes which could have been used to avoid traveling the same trail.

3. (C) Findings.

a. Blocking positions would be more effective if concealed in the same manner as ambushes.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

APPENDIX B -- Objective 2 (continued)

- b. Findings derived from a destruction operation are at Tab F.
- c. The M113 can be employed on security missions, but it should not be used where less versatile vehicles can do the job equally well.
- d. Mechanized rifle troops are suitable for reconnaissance missions in most areas of the RVN.
- e. The M113 can move from ship to shore in amphibious operations.
- f. To decrease the probability of encountering mines, tank traps, and ambushes, previously used routes should be avoided. Alternate routes should be used whenever possible.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX C -- Objective 3 (Logistical support requirements)

1. (C) Objective.

To determine the logistical support requirements for units and individual vehicles when operated in a counter-insurgency role in the RVN.

2. (C) Discussion.

a. Maintenance.

(1) First through third echelon maintenance continues to be performed effectively. Continued low mortality of major assemblies obviates a need for a major assembly rebuild program.

(2) Organization of the track vehicle repair team has changed slightly. One team of 45 men supports one armored cavalry squadron. The team has a third echelon maintenance and supply capability. Five mechanics are attached to each of the six troops in the squadron. Seven supply men and eight administrative men complete the team, making a satisfactory arrangement. During combat operations mechanics, their tools, and repair parts are carried on a 2½-ton truck. In areas inaccessible to wheeled vehicles, transportation must be provided by troop headquarters or the operating platoons.

(3) Following major maintenance problems were noted during the reporting period:

(a) Track shoes - FSN 2530-690-2682. Present wear and tear on track shoe rubber bushings will eventually cause the track pin to wear through the boss of the shoe. This, plus poor bonding of the inner track pad, have caused depletion of track shoe stocks in the RVN. Shoes were forecast to be in the country by 31 March, but none has arrived. Track shoe shortage will be critical if parts do not arrive shortly.

(b) Radiators - FSN 2930-679-9748. Radiators are failing in the corners of the upper tank. They are replaced in the field. Defective radiators are repaired and returned to stock. A radiator which failed during an operation on 26 March 1963 was replaced with a new radiator flown from a Saigon depot to the operational area by Caribou aircraft. Vehicle down time was less than 24 hours.

(c) Fuel cell access panel cap screws. Vehicular vibration loosens cap screws holding the fuel cell access panel. Present cap screws are not strong enough to be securely tightened without breaking. Ford Machinery Corporation, prime contractor for the vehicle, has recently sent enough Grade 8 cap screws into the country to replace screws on two-thirds of the vehicles here. This should nip in the bud a potential problem of major proportions.

(4) The unsatisfactory equipment report (UER) system has not been applied to the M113 in the RVN. As only one UER has been submitted to date, design and production agencies have no feed-back information on problems peculiar to the RVN. Knowledge of such problems is essential for future design work or local modifications for ARVN vehicles.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX C -- Objective 3 (continued)

(5) Numerous questions put to US military personnel by members of the ARVN confirm the need for a tank-automotive expert to introduce new equipment such as the M113. He should be a military person so that he can accompany the equipment on combat operations, and should be familiar with:

- (a) Maintenance.
- (b) Supply status, particularly with respect to initial provisioning of repair parts.
- (c) Status of special tools and test equipment.
- (d) Publication availability and recent changes not included in available publications.
- (e) Tactical use of the equipment.
- (f) All deficient areas reported during engineering and troop tests plus field fixes for these deficiencies.
- (g) Deprocessing procedures.
- (h) Contemplated production changes and modification work orders to relieve deficient areas.

B. Supply.

(1) As stated in the first monthly report, usage has exceeded initial stock of repair parts. In addition, only repair parts peculiar to the M113 were delivered. Support of the M113 would be facilitated if:

- (a) Parts provisioning were based on wartime usage rates.
- (b) Common, as well as peculiar, repair parts were provisioned. (The fact that a part is common to two or more vehicles does not necessarily mean that the part is stocked in Vietnam).

(2) Replenishment requisitions based on forecasts have been sent to CONUS. Forecasting requirements on the basis of a random sampling of vehicles which have undergone technical inspection is a sound approach.

(3) An engineering estimate of the predicted life of some of the more critical components would assist in determining initial quantities for replenishment requisitions. Certain parts, e.g., shock absorbers, are known to be marginal from testing. These items and their estimated life should be broadcast to the field by the design and production agency.

(4) Current authorization of repair parts to be stocked in organizations is shown in Appendix 1. Authorized amounts are inadequate to support sustained combat operations. ARVN units were prohibited from stocking any parts other than those listed because of the initial inadequate supply of repair parts in country. Units have recently been authorized to augment this listing by computing a requisitioning objective based on replacement demand experience. This should aid in alleviating the sparse supply of parts at unit level.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX C -- Objective 3 (continued)

3. (C) Findings.

- a. Vehicle maintenance continues to be performed effectively.
- b. Third echelon maintenance and supply performed by a small flexible team is working satisfactorily.
- c. Radiators, track shoes, and fuel cell access panel cap screws were maintenance problems in this reporting period.
- d. Unsatisfactory Equipment Reports should be submitted.
- e. A military expert should be sent along to introduce new equipment such as the M113.
- f. Common as well as peculiar parts should be provisioned for all new ARVN requirements based on wartime usage.
- g. A more realistic method of computing authorizations for organizational maintenance parts is now in use.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

Appendix 1 to ANNEX C

PREScribed LOAD LIST - M113 - ORGANIZATIONAL MAINTENANCE

<u>NOMENCLATURE</u>	<u>FSN</u>	<u>QTY</u>
Cap, vent, fuel tank	2910-798-4056	1
Cone, hub, inner	3110-100-0220	1
Cup, hub, outer	3110-100-0295	1
Cone, hub, outer	3110-100-0743	1
Cup, hub, outer	3110-100-0395	1
Gasket, engine coolant outlet	2930-679-9733	1
Gasket, radiator, inlet	2930-678-6160	1
Hose, fuel tank to filter	2910-712-1306	1
Hose, radiator inlet	4730-679-9771	1
Kit, oil filter, differential	2520-767-3135	1
Kit, oil filter, engine	2940-679-9826	1
Seal, hub	5330-679-9879	1
Shoe, track	2530-690-2682	1
Spark plug	2920-679-9728	1
Switch, front and rear bilge	5930-548-8046	1
Switch, ignition	5930-699-9438	1
Transmitter, pressure, engine oil	5930-692-9258	1

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Monthly Test Report Number 2 -- Mechanized Rifle Troops (M113)

ANNEX D -- Objective 4 (Effects of heat on personnel)

1. (C) Objective.

To determine the effects of hot weather on the proficiency and effectiveness of personnel within the carrier.

2. (C) Discussion.

The weather was relatively hot during March. No reduction in personnel proficiency or effectiveness was reported. Two crew members who rode in the forward compartment for four hours were given special attention. Both men remained completely inside the compartment even though the temperature was in excess of 100 degrees Fahrenheit during most of the four hours. Both men were alert during the time observed and one, a radio operator, sent and received CW radio messages continually (See Appendix 1).

3. (C) Findings.

Evidence collected so far indicates that hot weather has no adverse affect on the proficiency of individuals riding inside the M113.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M13)

Appendix 1 to ANNEX D.



Radio operator in hottest part of vehicle, during hottest part of the day (1140 to 1540). Heat did not affect his proficiency. He remained alert, operated radio continually. (Operation Peoples Victory Nr 204, 28 March 1963)

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Monthly Test Report Number 2 — Mechanized Rifle Troop (M113)

ANNEX E - Objective 5 (Vehicle performance)

1. (C) Objective.

To determine overall vehicle performance, under conditions prevalent in the RVN, to include:

- a. FOL consumption.
- b. Operating range.
- c. Ground mobility and agility in mountains, jungles, and inundated areas.
- d. Water mobility and agility, to include entering and leaving canals, and rivers.

2. (C) Discussion.

a. FOL consumption.

Information has been difficult to obtain. A mechanized rifle troop usually is attached to a division for combat operations. The division has responsibility for FOL support of all vehicles. Refueling at night after operations have terminated is common. All vehicles are refueled from the same containers and no records are kept. Gasoline used for solvent and in cook stoves is also obtained from the same containers. The most realistic figures were obtained by observing refueling procedures during two combat operations. Operations included road movement, cross-country movement through intermittent underbrush, and operations in the jungle. Twenty M113's participated. The vehicles traveled 755 miles and consumed 444 gallons of gasoline for an average of 1.7 miles per gallon.

b. Operating range.

Based on the M113 fuel tank capacity of 80 gallons and the consumption rate of 1.7 miles per gallon, the operating range is 136 miles.

c. Ground mobility and agility in mountains, jungles, and inundated areas.

(1) As stated in the first monthly report, ARVN forces use the M113 in mountainous areas as a means of transportation rather than as a fighting vehicle. There were no changes noted in this pattern during March.

(2) Appendix 3 provides an account of a search-and-clear operation conducted in the jungle on 19 March. Two other operations necessitated passing through jungle to reach a series of area objectives. It was necessary in both these operations to beat a trail through the jungle. In the first, an L-19 was used to assist in finding the best route. Impenetrable growth and fallen trees caused the vehicles to change direction frequently. It took an hour and a half to go one kilometer in the vehicles; foot troops went through the same area in approximately 30 minutes (see photos 1 and 2, Appendix 4). Insurgent sniper fire was encountered, but no casualties were suffered. Back-lashing branches and red ants made this phase of the operation uncomfortable for troops standing in the cargo hatch.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX E - Objective 5 (continued)

(3) Successful use of the M113 in inundated areas continued during March. The most rewarding use of the vehicle has been in rice paddy areas where there are long, broad fields of fire. Drivers are improving techniques of mobility in such areas. Suspension components have held up well under the shock of crossing over and smashing through dikes up to four feet in height. Soft ground in paddy areas has helped extend track life beyond design criteria. Tab F outlines in detail an operation conducted in the delta area.

(4) In an operation in the II Corps area, the M113 APC operated without difficulty in a high plateau wooded area. Trees were approximately four to six feet apart and six to eight inches in diameter. The area was also crisscrossed with gullies and ravines. Flat wooded areas were negotiated at a relatively even rate of speed (approximately 8 - 10 MPH). Gullies and ravines were also negotiated; however, in most instances foot reconnaissance was needed to find suitable crossing places (see photos 3-8, Appendix 4).

d. Water mobility and agility to include entering and leaving canals and rivers.

(1) As described in Annex B, M113's disembarked at sea from LVM's and successfully swam through 2-foot waves to shore. It took approximately eight minutes from ship to shore. No difficulty was encountered in this phase of the operation.

(2) During an operation in the delta, one vehicle was mired near a river bank. Eight vehicles swimming in the river were used in tandem to pull the stuck vehicle from the mud (see Appendix 2).

(3) Capstans attached to the drive sprockets of the M113 and used with a ground anchor and nylon rope will be tested as a means of self-recovery (see Appendix 1). The US-produced capstans will be made of aluminum and weigh just under 25 pounds each. Delivery is scheduled for the end of May. Results of tests will be discussed in future reports.

(4) Recovery methods used in a recent delta operation are discussed in Tab F.

e. Vulnerability.

(1) Two vehicles were struck and penetrated by friendly caliber .50 fire during the operation discussed in Annex F. One round penetrated the front upper plate and punctured the radiator. The other round penetrated the ramp above the ramp door. No casualties resulted.

(2) Another M113 was destroyed by enemy mines in March. This is the third vehicle to be destroyed by enemy action. The vehicle ran over what is thought to have been a cluster of four electrically-detonated mines. The explosion ruptured the hull floor. When the vehicle caught fire, its grenades and ammunition were detonated. One man was killed and 12 wounded.

3. (C) Findings.

a. M113's have been getting 1.7 miles per gallon of fuel. This gives them an operating range of 136 miles.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX E - Objective 5 (continued)

- b. The M113's usefulness in jungles and mountains is limited. In these areas it is vulnerable to tank traps, mines, and ambushes.
- c. M113's can be used in ship-to-shore operations through seas with two-foot waves.
- d. M113's have excellent cross-country mobility over wooded terrain.

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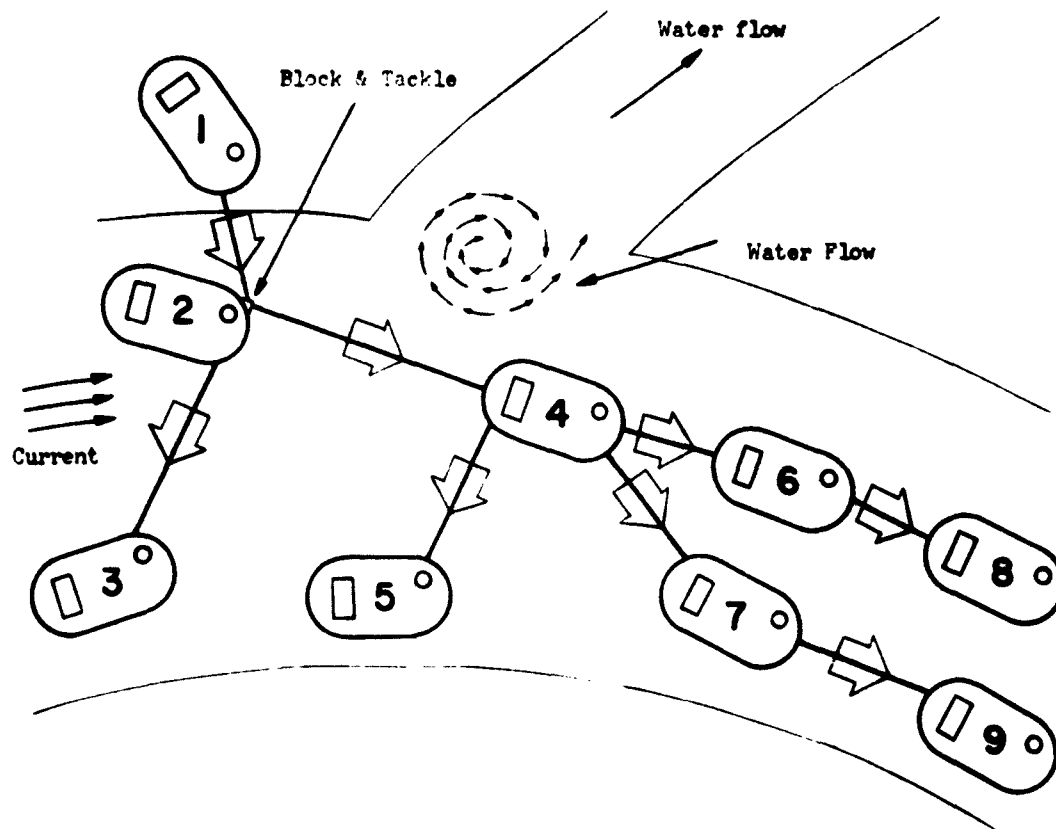
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Monthly Test Report Number 2 -- Mechanised Rifle Troop (M13)
Appendix 1 to ANNEX E



Capstan and rope attached to drive sprocket of M13. Ground anchoring device is not shown.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

Appendix 2 to ANNEX E



RECOVERY OF M113, 28 MARCH 1963

Vehicle mired in mud is number 1.

Vehicles water-borne on canal are numbers 2 through 9.

A block and tackle threaded with cable was placed on the left front lifting eye of number 2 and attached to number 1.

Numbers 3 and 5 were used as "dead men" for numbers 2 and 4, the latter two having been pushed to the left bank by a current of 3 to 4 knots.

All vehicles used cables to pull in the directions shown by arrows.

The operation was controlled from number 4 by the troop executive officer. All vehicles pulled in unison at his command.

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Appendix 3 to Annex 2 -- Operation near PHUOC HAI

1. (C) Discussion.

On 19 March 1965, a task force composed of one tank platoon, one M114 troop, and one M113 troop conducted a search-and-clear operation of a jungle area near PHUOC HAI. The tank platoon and two M114 platoons acted as a blocking force. One M114 platoon and one M113 platoon composed the maneuver element. The M113's and M114's operated on different axes; consequently, this was not considered to be a combined operation. The M113's entered the jungle in column on an overgrown trail. Progress was very slow because of the density of the jungle. Visibility to either side of the vehicle was limited to three feet. The vehicles had to change direction frequently. Troops were dismounted for 20 minutes to search a narrow trail where footprints were seen. No contact was made during this search. After passing close to the blocking force, it was obvious that any insurgents in the area had eluded the search force. The vehicles, therefore returned through the jungle and the operation was terminated. The entire operation was unsuccessful except for the experience gained by the drivers. The combination of backlashing bushes, thorn trees, and falling red ants kept the personnel standing in the hatches too busy to look for insurgents.

2. (C) Findings.

- a. This operation was unsuccessful because (1) the mechanized attack force was restricted to areas of accessibility which the insurgents obviously avoided, and (2) because the noise of the vehicles was sufficient to alert any insurgents in the area.
- b. Trails in the jungle are likely places for ambushes, tank traps, and mines.
- c. Dismounted troops would have moved with greater speed.
- d. Troop efficiency was impaired by backlashing trees, bushes, and falling insects.

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Appendix 4 to ANNEX E



Photo 1

Jungle to rear of M113. Vehicle used to clear a path. Additional M113's could have used the same trail, but foot troops can make their own trail much more quickly.



Photo 2

Dense jungle to the side of an M113 clearing a route. Progress rate 1 km per 1½ hours. An aerial observer in an L-19 assisted in finding the most accessible route.

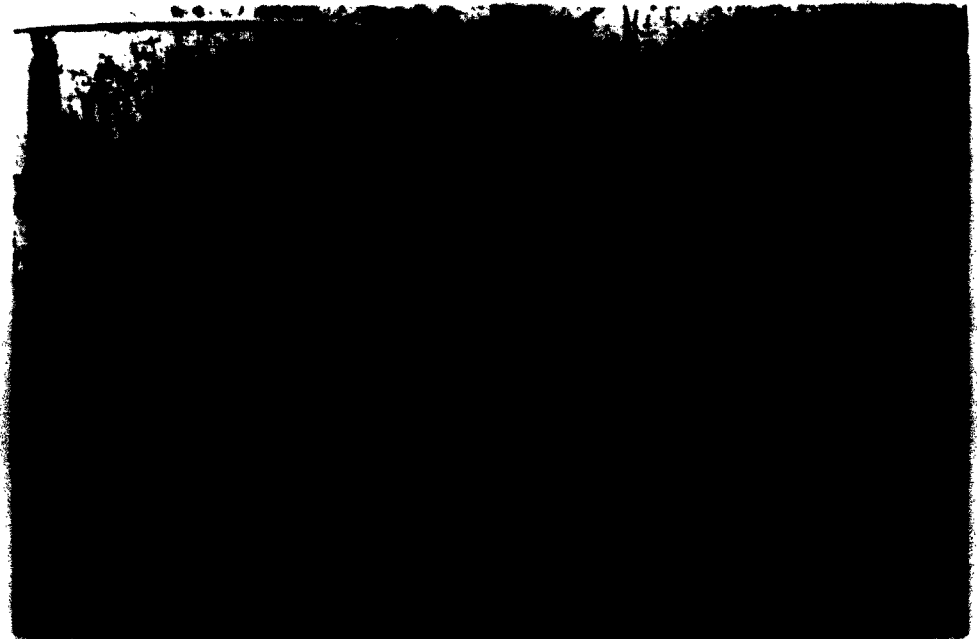
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Appendix 4 to ANNEX E



Photo 3

M113 emerges from wooded ravine which was easily negotiated after hasty foot reconnaissance.



The M113 travels through country like this almost as if it were open ground.
(Operation Peoples Victory Nr 204, 28 March 1963, both photos).

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Appendix A to ANEX E



Photo 5

ML13 negotiates grass and bamboo area.



Photo 6

ML13 emerges from grass and bamboo area. (Operation Peoples Victory Nr 20, March 1965 both photos.)

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

Appendix 4 to ANNEX E



Photo 7

M113 moves cross-country. Wooded areas with trees 6 to 8 inches in diameter and 4 to 6 feet apart present no obstacle to cross-country mobility.



Photo 8

Typical insurgent village, overrun and later destroyed by units employing M113s. (Operation Peoples Victory Nr 204, both photos)

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX F -- AP TAN THOI Operation

1. (C) General.

Two mechanized rifle troops participated in an operation in the vicinity of AP TAN THOI (XS 3040) from 12 through 15 March. The operation, planned by the ARVN IV Corps and executed by the ARVN 7th Division, was productive of data relevant to several test objectives.

2. (C) Mission.

7th Infantry Division seals off and attacks VC in vicinity of AP BAC-AP TAN THOI beginning 130645 March. Following occupation of the area, secure area during resettlement operations.

3. (C) Concept of operations.

a. Phase I. 10th and 11th Regiments attack 130645 March from west and east respectively along canals north of objective area to seal off area in the north. Navy river patrol unit seals off area to east, and 3d Troop, 2d Squadron, seals off area on the west and south. Task Force "B" attacks 130645 March from the south into the AP BAC - AP TAN THOI area to capture or destroy VC in area. (See sketch, Appendix 1.)

b. Phase II. Following defeat of VC in area, units continue search-and-clear operations to insure no VC remain in area, and secure area during resettlement operations.

c. Participating units. Appendix 1.

4. (C) Description of the operation.

a. Commander, Task Force "B", received the operation order from his squadron commander at 1600 on 12 March in MY THO. His request that the route to the objective area be changed to one better known to him was disapproved. Route reconnaissance was not performed; aerial photos of the objective area were available and were studied. The mechanized rifle troop was to depart MY THO at 130540, move via Highway 16 to the LD, and cross the LD at 0645. The troop was to meet the other task force units at the LD. 4th Troop, 2d Squadron had returned to MY THO on 10 March after extended operations, and had not yet performed required maintenance, replenished supplies, or rested its troops. At 121930 March, while the troop was preparing for the next day's mission, it was alerted for a new mission. A civil guard unit north of CAI LAI (XS 2250) had been attacked by the VC and was in need of assistance. The troop moved out at 2110, other elements of the task force were not involved in the mission. At this time the 5th Troop of the 1st Squadron in SAIGON was ordered to replace the 4th Troop in the operation planned for 13 March. By the time 4th Troop arrived in the area north of CAI LAI the situation had eased and the unit went into an assembly area for the night at about 2330.

b. The next morning, Commander, 4th Troop, was ordered to carry out the original plan, and was informed that the troop from SAIGON would become part of his task force. The troop moved out of the assembly area at 130530 hours and followed the highway from CAI LAI to the LD. As the troop turned north from Highway 16 and proceeded toward the LD at 0700, the Ranger and Civil Guard companies were moving across the LD as planned. 4th Troop Commander

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX F - (continued)

established communications with these units as Commander, Task Force "B". The mechanized rifle troop from SAIGON had not yet arrived in the area. 4th Troop was stopped at the LD by a canal.

c. The canal crossing took about two hours. The troop did not proceed until all carriers were crossed. The canal was ten yards wide and had steep banks. The water was about three feet deep. As each carrier entered the canal it bogged down and had to be pushed or towed across. This was the first of five crossings. As a result of these delays, the troop took ten hours to move seven kilometers. It was able to move rapidly through the flat rice paddies between canals.

d. Ranger and Civil Guard companies moved through their assigned objectives, clearing and searching without incident until they reach the village of AP TAN THOI (XS 3039) at about 1500 hours. Here the VC were discovered in a prepared position along a wood line around the village. Ranger and Civil Guard units attempted to attack the position but were repulsed. The Ranger company commander reported the situation to the Task Force "B" commander on the radio. He stated that the VC were attacking him and asked for immediate assistance.

e. The task force commander arrived at the Ranger and Civil Guard positions with his troop at about 1700 hours. By this time the other mechanized rifle troop (5th Troop, 1st Squadron) had joined the task force. The foot troops had taken up a position behind a rice paddy dike about three-hundred meters from the VC positions.

f. The task force commander coordinated a plan to use his troop, one Ranger company, and one Civil Guard company for an attack on the VC position. The plan called for air strikes and artillery fire on the position, followed by an assault by the mechanized troop and the foot troops. The second mechanized troop and the other Civil Guard company were not included in the plan for assault, though they were apparently available.

g. Air strikes were conducted between 1730 and 1900. They did not hit the VC positions in the wood line. To no avail, Task Force "B" commander repeatedly requested the airborne Forward Air Controller in a VNAF O-1 aircraft to move the strikes from the center of the village to the edge of the tree line. White phosphorous grenades dropped by the O-1 exploded high in the air and drifted rapidly down-wind. Viet Cong fired back at the T-28 aircraft during pull-up following strafing runs.

h. The assault was launched at 1915 hours. Although ordered to advance with the mechanized troop, the foot troops did not move out with the carriers. The flame thrower track was particularly successful although the gunner was killed. As the carriers approached the wood line on a narrow front (about 200 meters), the VC withdrew in the increasing darkness and escaped to the north and east. The Rangers and Civil Guards then came up and moved past the carriers and into the village. The night was spent with the foot troops in the village and the mechanized troops in a perimeter in the rice paddies near the village. The mechanized troop suffered two KIA and five WIA. Total friendly casualties were five KIA and 11 WIA. The VC had used automatic weapons, 81-mm mortar, 57-mm recoilless rifle, and small arms fire. No hits were scored by the recoilless rifle. An ARVN-fired

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Monthly Test Report Number 2 — Mechanized Rifle Troop (M113)

ANNEX F - (continued)

.50-caliber pierced the hull and radiator of one M113.

i. A search of the area the next morning revealed blood around the foxholes and one VC body. One 57-mm recoilless rifle mount was captured with four rounds of ammunition and three expended shell casings. Several grenades, other small items of equipment, and documents were found. Friendly troops wounded the night before were evacuated by helicopter.

j. Operations on 14 and 15 March consisted of search-and-clear activities. Units took up blocking positions at night and no significant contact was made. During this period, three suspected VC were captured.

6. (C) Lessons learned.

a. M113 operations require detailed route reconnaissance. The M113 troop took about 10 hours to go seven kilometers. This was due to many tedious and exhausting canal crossings. Canals were generally five to ten yards wide, with water three to four feet deep and with thick mud bottoms. Canal banks were four to five feet high, and steep. Each vehicle had to be towed or pushed across. Many of the canals could have been avoided had there been proper reconnaissance (see photos in Appendix 3).

b. To be of maximum use, air strikes must be properly directed. Air strikes hit behind the tree line, missing the VC foxholes. The M113 troop commander, talking on his PRC/10 P radio to the C-1, repeatedly requested that the strikes hit the wood lines. None did.

c. M113 .50-caliber machine guns should be used to suppress ground fire directed at aircraft. VC fired at the T-28's as they made their pull-up. M113 fire on the positions before and during strafing would inhibit VC fire, and help mark the target.

d. When the VC stands and fights in a prepared position, normal assault tactics must be used. Fire and maneuver were not coordinated during the attack on the VC. No attempt was made to flank the position, nor was any attempt made to seal off the area. Combat power was present to have accomplished this, but only half of the force figured in the plans to attack the VC position. Only the mechanized company actually assaulted. Darkness assisted the VC in escaping.

e. Ranger and Civil Guard units need to know how to work with armored vehicles. It appeared that the Ranger and Civil Guard units had little knowledge of how to work with armor. Training is needed. M113's can lead infantry to wood lines, with the infantry using the carriers for protection. At this point, infantry must move rapidly into the tree line as APC's cannot, in most cases, continue because of the canals.

f. Canal-crossing ability of armored units must be improved. All techniques must be exploited, to include use of explosives to knock holes in canal banks. Where possible, multiple crossing sites should be used to reduce crossing time. Also, some M113's should move ahead to begin crossing the next obstacle instead of waiting for all to get across before moving on. Development of a dry-span launched from an M113 could be of great use in crossing these relatively narrow canals.

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

ANNEX F - (continued)

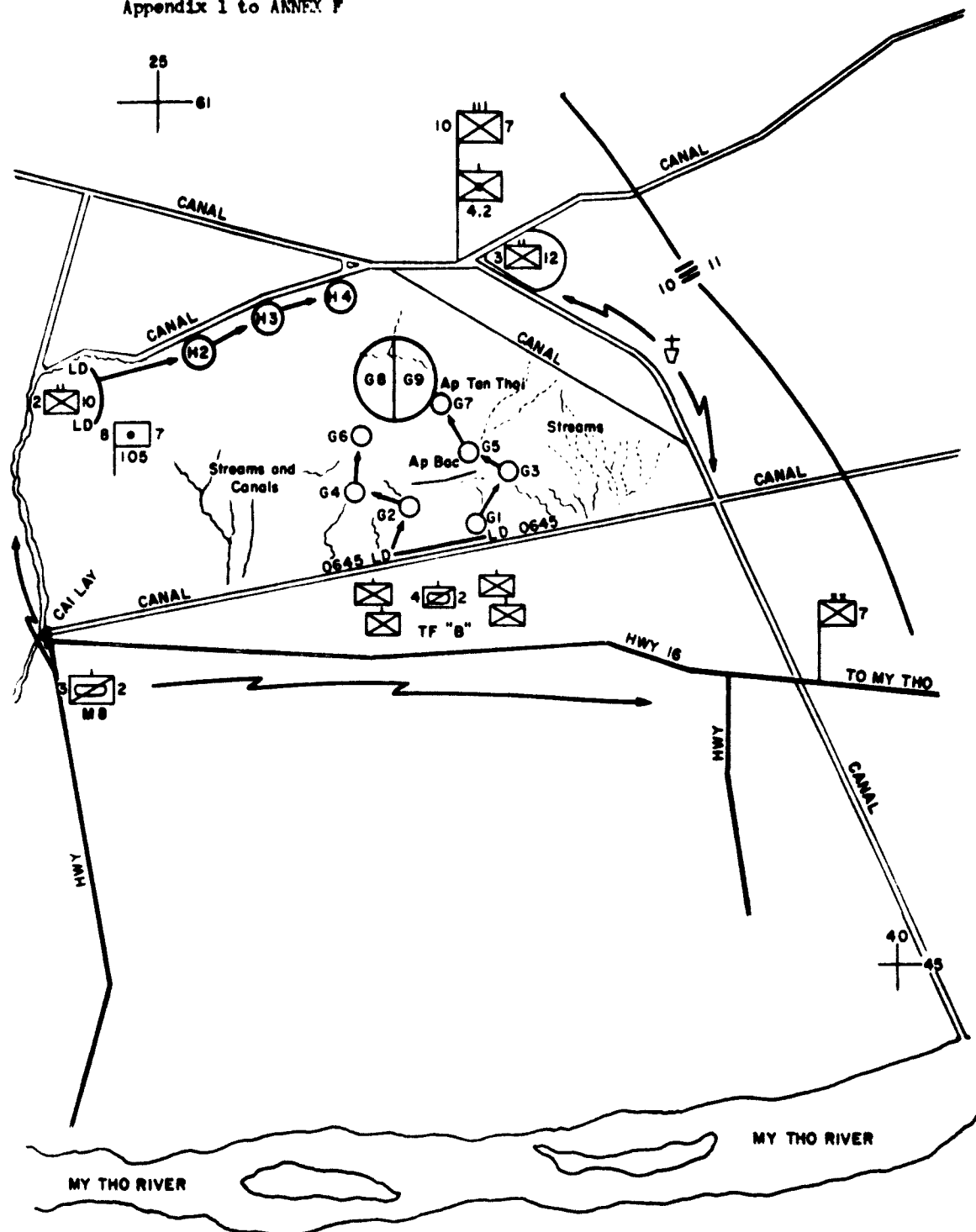
g. The force employed was not proportionate to the size of the area of operations. The area could not be sealed off effectively by the forces employed. Only two M8 armored cars, for example, were available for blocking Highway 16 to the south.

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 Monthly Test Report Number 2 -- Mechanized Rifle Troop (M13)
 Appendix 1 to ANNEX F



REFERENCE: Indochina, 1:100,000;
 Sheet 229 W, My Tho West

Operation "Ap Tan Thai" 13-14 March 1963

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Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)

Appendix 2 to ANNEX F -- List of participating units

- a. Headquarters IV Corps.
- b. Headquarters 7th Division.
- c. 11th Regiment, 7th Division.

Attached: One 105-mm howitzer battery and one 155-mm howitzer section, 28th Artillery.

- d. 10th Regiment, 7th Division (-1st and 3d battalions).

Attached: Composite battalion, 12th Regiment.

One 4.2-inch mortar battery. (*)

B Battery (105 How), 7th Artillery.

- e. Task Force "B" (CC, 4th Troop, 2d Cavalry Squadron commanding).
4th Troop, 2d Cavalry Squadron (M113 mechanized rifle troop).
334th Ranger Company.
Civil Guard Company. (*)
Civil Guard Company. (*)
5th Troop, 1st Cavalry Squadron (M113 mechanized rifle troop).
- f. 3d Troop, 2d Cavalry Squadron (M-8 armored car troop).
- g. 1st Troop, 2d Cavalry Squadron (M24 tank troop) (-two platoons).
- h. Two Civil Guard companies (CP security). (*)
- i. Reserve: 3d Battalion, 12th Regiment.
- j. Tactical air support. On call.

(*) Numerical designations not known.

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Appendix 3 to ANNEX F

PICTURES OF 4TH TROOP, 2D
CAVALRY DURING OPERATION
"AP TAN THOI" 13 - 14 MAR 63

ACTIV-GM
Monthly Test Report Number 2 -- Mechanized Rifle Troop (ML13)
Appendix 3 to ANNEX F



Photo 1

130645 Mar 63
IS 302500

Troop moves north toward LD (wood line in background) from Bay 16.
Note dry rice paddy foreground, wet rice paddy in the middle. Troops
ride on top of carrier except when under fire.

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Photo 2

130700 Mar 63
XS 298157

Troop stops by first canal (left). Pioneer squad (attached) prepares to place balk. System for securing balk to carriers was developed previous day.

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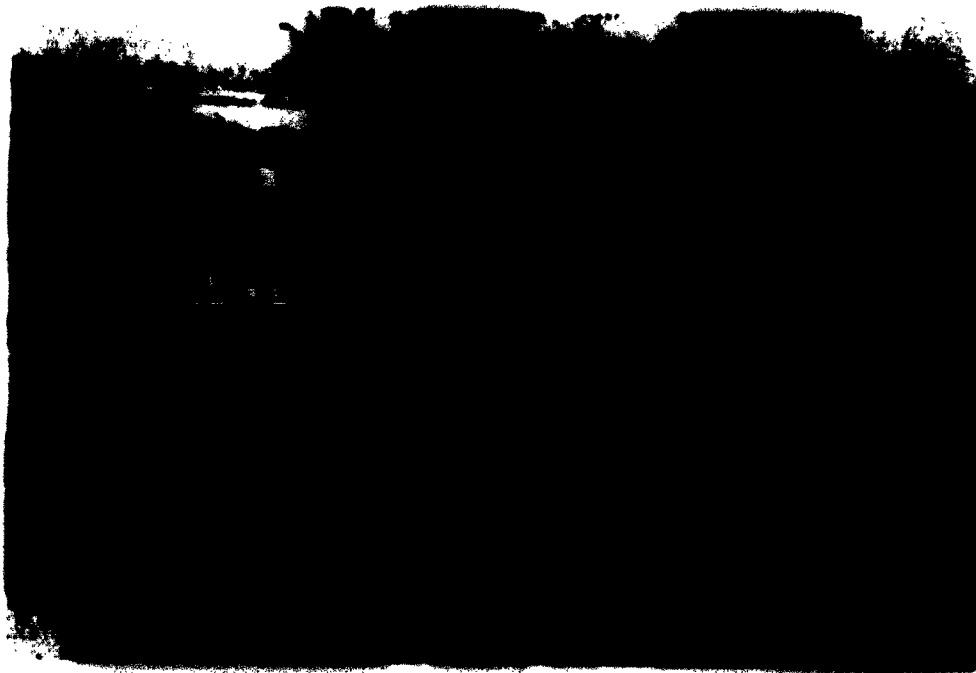


Photo 3

131000 Mar 63
IS 296526

Troop crosses another canal. Tracks crossed one at a time at the same spot. Men removed boots and trousers to work in mud. Crossing took about two hours.

ACTIV-QM
Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)
Appendix 3 to ANEX F



Photo 4

131030 Mar 63
IS 296326

Pioneer squad recovers aluminum balk from canal. Tracks had mashed it into the mud. Final recovery was made by snatching it out with a cable. Unless firm ground for abutments is present, balk sinks into mud.

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Appendix 3 to ANNEX F



Photo 5

131400 Mar 62
XS 283436

Canal crossing. Two M113's are driven into canal as far as possible to determine if crossing under own power is possible. Timber is being used to enable track at left to push stuck track. Another M113 is pushing on track at left in a similar fashion. Normally it took two tracks to get one across, either pushing or pulling. Note shields for .50-caliber MG.

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Appendix 3 to ANNEX F



Photo 6

131700 Mar 63
IS 308543

81-mm mortar section sets up to fire on VC positions at Ap Tan Thoi.
VC 81-mm mortar fire received in this location.

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Photo 7

131745 Mar 63
XS 307347

After final canal crossing, carriers move to join Ranger and Civil Guard companies before VC position in wood line. Note Rangers behind dike at arrow. Small white spot is RVN flag carried by Ranger company. Foot troops had previously assaulted position and were driven back to the dike.

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Photo 8

171750 Mar 63
XS 307548

Mechanised Troop carries up with Ranger and Civil Guard companies deployed behind a small dike. VC position is in wood line. No fire was being exchanged at this time. Men in front of dike are recovering a wounded Ranger shot in earlier assault.

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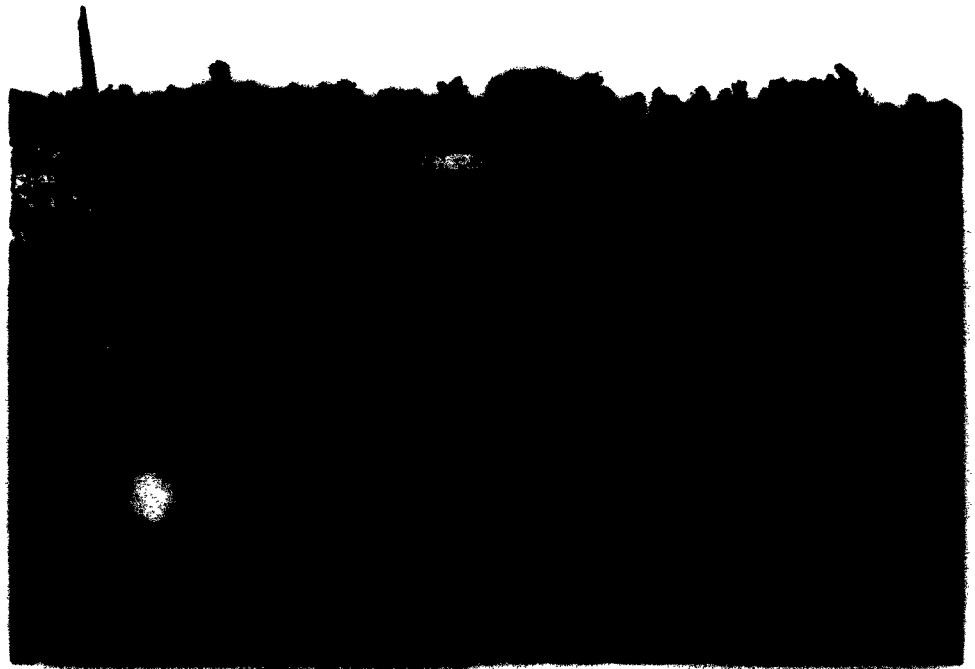


Photo 9

131800 Mar 63
XS 307548

Wounded Ranger is brought into friendly position. This man was evacuated the next morning.

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Appendix 3 to ANNEX F



Photo 10

131815 Mar 63
XS 307548

T-28 fires rockets during air strike on Ap Tan Thoi. Air strike did not hit VC along tree line. Attempts to get O-1 (FAC) to move strike to tree line were unsuccessful.

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Photo 11

131900 Mar 63
ES 307548

Ranger and Civil Guard Companies line up for assault. Carriers get into position. Rangers and Civil Guard had never worked with carriers before. They were attached to M13 Troop.

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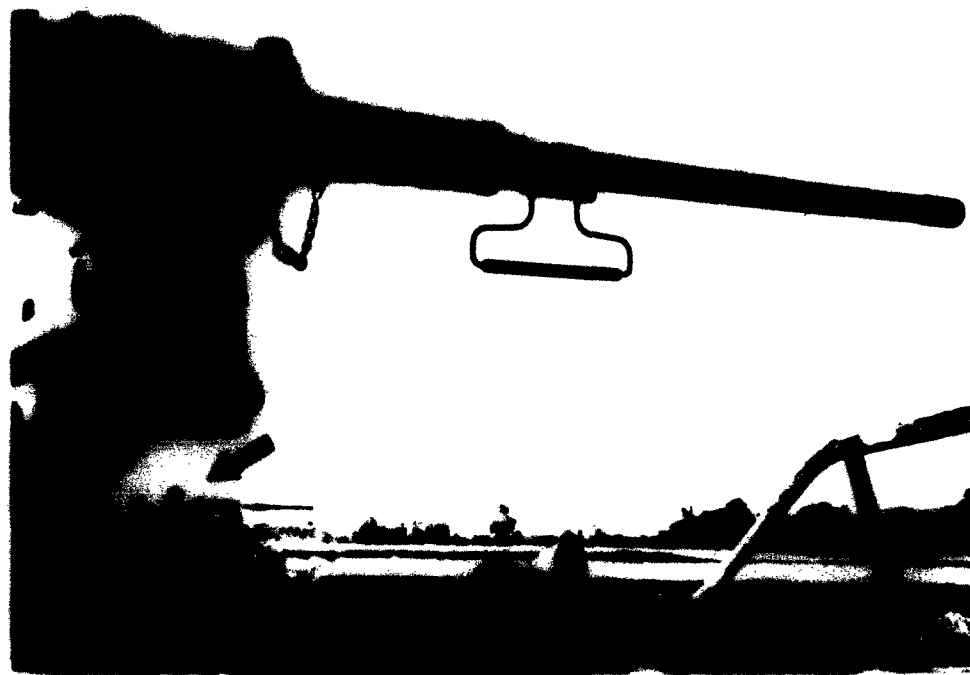


Photo 12

131915 Mar 63
IS 307548

.50-caliber is fired into VC position as attack moves out. MD's were not accurately aimed in most cases. Gunners sprayed the area.

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Appendix 3 to ANNEX F



Photo 13

131920 Mar 63
IS 307548

VC position being assaulted by mechanized troop. 57-RR and 81-mm fire received from VC position. 57-RR fired at least three rounds. All missed. Rangers and Civil Guard companies held back and did not assault with carriers. Note carriers visible over .50-caliber and dismounted Rangers at right.

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Appendix 3 to ANNEX F



Photo 14

131920 Mar 63
XS 307548

Carrier in assault of VC position.

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Photo 15

131300 Mar 63
XS 260542

Troops have lunch on top of carriers. Troops eat in small groups.
They cook their own food bought with subsistence money.

ACTIV-OM**Monthly Test Report Number 2 -- Mechanized Rifle Troop (M113)****ANNEX G -- Distribution of report.**

<u>Addressee</u>	<u>Nr. of copies</u>
Commander, US Military Assistance Command, Vietnam (attention Director, JOEG-V)	15
Commander-in-Chief, US Army Pacific	5
Commanding General, US Army Combat Developments Command	50
Commanding General, US Continental Army Command	5
Commanding General, US Army Materiel Command	5
Commanding General, US Army Support Group, Vietnam	20 (Includes 5 cys to CG, USARIŠ)
Chief, Military Assistance Advisory Group, Vietnam (attention Chief, Army Section)	20
Deputy Chief of Staff for Military Operations, Department of the Army	10
Deputy Chief of Staff for Logistics, Department of the Army	5
Deputy Chief of Staff for Personnel, Department of the Army	5
Chief of Research and Development, Department of the Army	5
ACTIV Liaison Officer, ODCSOPS, Department of the Army	5